

COLIN M. DONIHUE

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RESEARCH FOCUS

I am an evolutionary ecologist studying the drivers and consequences of variation in animal functional traits. In particular, my research focuses on predicting changes in behavioral, morphological, and performance traits as a result of changes in ecological context. My field research in Southern Europe, the West Indies, East Africa, and North America makes use of direct manipulative studies and landscape-scale natural experiments. My work generates fundamental insights into eco-evolutionary dynamics and critical applied lessons for conservation in human-dominated landscapes.

EDUCATION

- 2011 – 2016 School of the Environment, Yale University, New Haven, CT
Ph.D. Conservation Ecology and Evolutionary Biology
- 2009 – 2011 School for Environment and Sustainability, University of Michigan, Ann Arbor, MI
M.Sc. Natural Resources and Environmental Studies
- 2004 – 2008 Carleton College, Northfield, MN
B.A. Biology major with a focus in Ecology

ACADEMIC POSITIONS

- 2020 – Voss Postdoctoral Research Fellow, Institute at Brown for Environment and Society, with Dr. Tyler Kartzinel
- 2020 Postdoctoral Research Associate, Washington University in St. Louis, with Dr. Jonathan Losos
- 2020 Visiting Instructor, Colby College (January 2020)
- 2017 – 2020 NSF Postdoctoral Fellow, Harvard University (2017 – 2018), Washington University in St. Louis (2019 – 2020). Sponsoring scientist: Dr. Jonathan Losos
- 2018 Visiting Scholar, Functional Evolution Group: Muséum National d’Histoire Naturelle. Paris, France. Sponsoring scientist: Dr. Anthony Herrel
- 2016 Postdoctoral Researcher, Harvard University, with Dr. Jonathan Losos

PUBLICATIONS IN REVIEW

Manuscripts available upon request:

- M. Vasilopoulou-Kampitsi, J. Goyens, **C.M. Donihue**, P. Pafilis, A. Herrel, R. Van Damme, P. Aerts. Intersexual differences in manoeuvrability in the Aegean wall lizard (*Podarcis erhardii*). Accepted, pending revisions: *Journal of Zoology*.
- **C.M. Donihue**. Evolutionary consequences of extreme climate events. In revisions: *BioScience*.
- M.N. Simon, P.S. Rothier, **C.M. Donihue**, A. Herrel, J.J. Kolbe. Transgenerational morphological responses to an extreme climate event: does hurricane-induced selection change limb integration and evolvability? In revisions: *The American Naturalist*

- **C.M. Donihue**, A. Herrel, J. Foufopoulos, P. Pafilis. Body condition and jumping predict initial survival in a replicated island introduction experiment. In review: *Biological Journal of the Linnean Society*.
- R. Scherrer[‡], **C. M. Donihue**, R.G. Reynolds, J. Losos, A. Geneva. Dewlap color variation in *Anolis sagrei* is maintained between habitats within islands of the West Indies. In Review: *Journal of Evolutionary Biology*

PUBLICATIONS

*undergraduate & †graduate students under my supervision; §authors contributed equally

1. A.H. Patton, L.J. Harmon, M.R. Castaneda, H.K. Frank, **C.M. Donihue**, A. Herrel, J.B. Losos. 2021. When adaptive radiations collide: different evolutionary trajectories between and within island and mainland lizard clades. *Proc. Nat. Acad. Sci.*
2. S. Debaere, **C.M. Donihue**, A. Herrel, S. Van Wassenbergh. 2021. An aerodynamic perspective on hurricane-induced selection on *Anolis* lizards. *Functional Ecology*.
 - *Press*: Outside JEB
3. **C.M. Donihue**, J.C. Daltry, S. Challenger, A. Herrel. 2021. Population increase and changes in behavior and morphology in the Redonda ground lizard (*Pholidoscelis atratus*) following the successful removal of alien rats and goats. *Integrative Zoology*.
4. **C.M. Donihue**, A. Kowaleski, J.B. Losos, A. Algar, S. Baeckens, R.W. Buchkowski, A.-C. Fabre, H.K. Frank, A.J. Geneva, R.G. Reynolds, J.A. Velasco, J.J. Kolbe, D.L. Mahler, A. Herrel. 2020. Hurricane effects on neotropical lizards span geographic and phylogenetic scales. *Proceedings of the National Academy of Sciences* 117, 10429-10434.
 - Cover Photo
 - Commentary by R. Huey and P. Grant
 - *Press*: The New York Times, Smithsonian, Atlas Obscura, Miami Herald, The Weather Channel, Cosmos, Massive, Inside Science, Futurity, The Wildlife Society
 - Recommended by Faculty Opinions (F1000)
5. **C.M. Donihue**, A. Herrel, J. Martín, J. Foufopoulos, P. Pafilis, S. Baeckens. 2020. Rapid and repeated divergence of animal chemical signals in an island introduction experiment. *Journal of Animal Ecology* 00:1–10.
 - Shortlisted for the Elton Prize for best paper by an early career researcher
 - *Press*: Cosmos Magazine, Futurity, IFL Science, Radio 1 Belgium
6. M.R. Lambert, K. Brans, S. Des Roches, **C.M. Donihue**, S. Diamond. 2020. Adaptive evolution in cities: Progress and misconceptions. *Trends in Ecology and Evolution*.
7. Lambert, M.R., and **C.M. Donihue**. 2020. Urban biodiversity management using evolutionary tools. *Nature Ecology & Evolution*.
 - *Press*: Anthropocene Magazine, The Wildlife Society

8. K. M. Brock, S. Baeckens, **C. M. Donihue**, J. Martín, P. Pafilis, D. L. Edwards. 2020. Trait differences among discrete morphs of a color polymorphic lizard, *Podarcis erhardii*. *PeerJ*.
9. J.T. Stroud, C. Mothes, W. Beckles, R. Heathcote, **C.M. Donihue**, J.B. Losos. 2020. An extreme cold event leads to community-wide convergence in lower temperature tolerance. *Biology Letters* 16, 20200625.
 - Cover Photo
 - *press*: CNN, Smithsonian Magazine, Science Daily, The Weather Channel, Miami Herald, Yahoo News, The Wildlife Society, Science News
10. A. Rabe, N. Herrmann, K. Culbertson, **C.M. Donihue**, S. Prado-Irwin. 2020. Post-hurricane shifts in the morphology of island lizards. *Biological Journal of the Linnean Society*, blaa022
11. E. D’Agostino*, **C.M. Donihue**, J.B. Losos, A.J. Geneva. 2020. Assessing the effects of genetic divergence and morphology on *Anolis* lizard mating.” *Breviora*.
12. Pafilis, P., A. Herrel, G. Kapsalas, M. Vasilopoulou-Kampitsi, A.-C. Fabre, J. Foufopoulos, **C.M. Donihue**. 2019. Habitat shapes thermoregulation of Mediterranean lizards introduced to replicate experimental islets. *Journal of Thermal Biology* 84, 368–374.
13. Dufour, C.M.S., **C.M. Donihue**, J.B. Losos, A. Herrel. 2019. Parallel increases in grip strength in two species of *Anolis* lizards after a major hurricane on Dominica. *Journal of Zoology*.
 - Cover Photo
 - *press*: The BBC, National Geographic – France, New Scientist, Big Think
 - *video*: MSN Videos
14. **Donihue, C.M.**, A. Herrel, A-C Fabre, A. Kamath, A.J. Geneva, T.W. Schoener, J.J. Kolbe, J.B. Losos. 2018. Hurricane-induced selection on the morphology of an island lizard. *Nature* 560, 88-91.
 - *press*: Nature, National Geographic, The New York Times, The Atlantic, Smithsonian Magazine, The Associated Press, PRI’s The World, The BBC, Scientific American, Le Figaro, The Weather Channel, The Independent, The Telegraph, Le Monde, Popular Science, Axios
 - *video*: [150,000+ views] National Geographic, Nature Videos, The Associated Press, The Weather Channel, Zeste de Science (French CNRS)
15. Itescu, Y., R. Schwarz, **C.M. Donihue**, et al. 2018. Inconsistent patterns of body size evolution in co-occurring island reptiles. *Global Ecology and Biogeography* 2018:00: 1-13.
16. **Donihue, C.M.** 2016. Aegean wall lizards switch foraging modes, diet, and morphology in a human-built environment. *Ecology and Evolution* 6: 7433-7442.
 - Recommended by Faculty Opinions (F1000)
17. **Donihue, C.M.** 2016. Microgeographic variation in locomotor traits among lizards in a human-built environment. *PeerJ* 4, e1776.
 - *video*: ScienceVio

18. **Donihue, C.M.**, K.M. Brock, J. Foufopoulos, A. Herrel. 2015. Feed or fight: What drives bite force differences in the Aegean Wall Lizard, *Podarcis erhardii*, across the Greek Cyclades? *Functional Ecology* 30(4): 556-575.
 - *press*: BLink, Sage Magazine
 - *video*: [2,000+ views] Functional Ecology
19. Schmitz, O.J., R.W. Buchkowski, K.T. Burghardt, & **C.M. Donihue**. 2015. Functional traits and trait-mediated interactions: Connecting community-level interactions with ecosystem functioning. *Advances in Ecological Research* 52: 319-343.
20. **Donihue[§], C.M.**, M.R. Lambert[§]. 2014. Adaptive evolution in urban ecosystems. *AMBIO*. DOI: 10.1007/s13280-014-0547-2
 - Recommended by Faculty Opinions (F1000)
 - *video*: [1,000,000+ views] MinuteEarth
21. Sagonas, K., P. Pafilis, P. Lymberakis, **C.M. Donihue**, A. Herrel, & E.D. Valakos. 2014. Insularity affects head morphology, bite force and diet in a Mediterranean lizard. *Biological Journal of the Linnean Society* 112(3): 469-484.
22. Brock K.M., **C.M. Donihue**, & P. Pafilis. 2014. Novel records of frugivory and ovophagy in *Podarcis* lizards from East Mediterranean Islands. *North-Western Journal of Zoology* 10(1): 223-225.
23. **Donihue, C.M.**, J. Foufopoulos, C. Riginos, L. Porensky, & R.M. Pringle. 2013. Glade cascades: Indirect legacy effects of pastoralism enhance the abundance and spatial structuring of arboreal fauna. *Ecology* 94(4): 827-837.
 - *press*: ScienceDaily

PEER-REVIEWED NATURAL HISTORY CONTRIBUTIONS

24. **Donihue, C.M.**, G. Giller, A. Herrel. 2017. An unusual meal for the Redonda Ground Lizard. *Herpetological Review* 48(3): 655.
25. **Donihue, C.M.** 2017. *Podarcis siculus*: A breeding population in Boston's Fenway Victory Gardens. Geographic Distribution Notes: *Herpetological Review*.
 - *press*: Earth Island Journal
26. Mossman*, A., K. Culhane*, Z. Miller*, K. Brock, P. Pafilis, & **C.M. Donihue**. 2016. An extreme new record of *Natrix natrix* from a Mediterranean Islet in Greece. *Herpetozoa*.
27. Lambert, M.R., B.A. Goldfarb, G.J. Watkins-Colwell, & **C.M. Donihue**. 2016. *Podarcis siculus* (Italian Wall Lizard). Habitat, invasion of suburban Winchester County, New York. *Herpetological Review*.
 - *press*: The Last Word on Nothing
28. Goldfarb, B.A., M.R. Lambert, **C.M. Donihue**, & G.J. Watkins-Colwell. 2016. *Podarcis siculus* in Winchester County NY. Geographical Distribution Notes: *Herpetological Review*.
29. **Donihue, C.M.**, M.R. Lambert, & G.J. Watkins-Colwell. 2015. *Podarcis sicula*: Natural history of the invader as it reaches Connecticut. *Herpetological Review* 46(2): 260-261.

- *press*: The New York Times, The Beaker, Greenwich Time
30. **Donihue, C.M.**, M.R. Lambert, & G.J. Watkins-Colwell. 2014. *Podarcis sicula*: The first population found in New England. *Geographical Distribution Notes: Herpetological Review* 45(4): 661-662.

OTHER CONTRIBUTIONS

31. **Donihue, C.M.**, A. Herrel. 2019. “A report on *Anolis nubilus* from the now rat-free island of Redonda.” *Anolis Newsletter VII*, pp. 63-66. Eds. Stroud, J.T., Geneva, A.J., Losos, J.B. Washington University, St. Louis MO. DOI: 10.7936/gig3-h168.
- *press*: Scientific American
 - *video*: Antigua Barbuda Today
32. Jens De Meyer, **C.M. Donihue**, D. Scantlebury, J. Ng, R. E. Glor, J.B. Losos, & A. J. Geneva. 2019. Protocol for setting up and rearing a successful lizard room. *Anolis Newsletter VII*, pp. 37-62. Eds. Stroud, J.T., Geneva, A.J., Losos, J.B. Washington University, St. Louis MO.
33. **Donihue, C.M.**, B. Kazez. Illustrating a free, open-source method for quantifying locomotor performance with sprinting Aegean wall lizards. *PeerJ PrePrint*: 2:e701v1 <http://dx.doi.org/10.7287/peerj.preprints.701v1>

INVITED TALKS, POSTERS, AND PRESENTATIONS

- 2021 **Hurricane Ecosystem Response Synthesis Network: HERS Kickoff Conference**
Talk Title: *Lizards, hurricanes, and evolution*
- Ecology and Evolutionary Biology: Brown University, Providence RI**
Talk Title: *Lizards, hurricanes, and evolution following extreme climate events*
- 2020 **Ecology and Evolutionary Biology: University of Kansas, Lawrence KS**
Talk Title: *Hurricanes to humans: Drivers of trait changes in the Anthropocene*
- Biology Department Seminar: Colby College, Waterville ME**
Talk Title: *Hurricanes to humans: Drivers of trait changes in the Anthropocene*
- 2019 **MassPARC: Partners in Reptile and Amphibian Conservation, Westborough, MA**
Talk Title: *Italian Wall Lizards in Boston*
- Biology Department Seminar: University of Florida, Gainesville, FL**
Talk Title: *Hurricanes to humans: Drivers of trait changes in the Anthropocene*
- St. Louis Ecology, Evolution, and Conservation Retreat, Lewis and Clark CC, IL**
Talk Title: *Hurricane effects on anoles span geographic and phylogenetic scales*
- Living Earth Collaborative Seminar Series, Washington University, St. Louis, MO**
Talk Title: *Experimental evolution in the wild: Lessons for conservation in a rapidly changing world*
- 2018 **Department Seminar Series: FunMorph Lab, University of Antwerp, Belgium**
Talk Title: *Natural selection in the wild: Plasticity and Evolution in Island Lizards*
- Joint Congress on Evolutionary Biology, Montpellier, France**

Poster Title: *How does an adaptive radiation begin? Contingency and determinism in Anolis sagrei ecological speciation*

2nd Symposium on Mediterranean Lizards, Tel Aviv, Israel

Talk Title: *Megabites: Rapid increase in lizard bite force following replicated introduction to small Greek Islets*

7th Anole Symposium, Miami, FL

Talk Title: *Hurricane-induced Adaptive Shifts in the Morphology of an Island Lizard*

Poster Title: *Reporting on the Reptiles of Redonda*

Conservation Seminar Series, St. John's, Antigua and Barbuda

Talk Title: *Conservation in a Rapidly Evolving World*

2017 **NSF Postdoctoral Fellows Conference**, Cambridge, MA

Poster Title: *Rapid Evolution of Lizard Form and Function*

New England Herpetological Society, Weymouth, MA

Invited Talk Title: *Italian Wall Lizards in New England*

2016 **Carleton College Biology Department**, Northfield, MN

Invited Talk Title: *Lizard Ecology and Evolution in the Anthropocene*

2015 **Ecological Society of America Annual Meeting**, Baltimore, MD

Talk Title: *Human land use with cascading ecological effects: an examination of hunting mode switching in Podarcis erhardii and associated effects on insect populations*

2014 **21st Century Naturalists: The American Society of Naturalists**, Asilomar, CA

Talk Title: *Human Impacts on Lizard Adaptability and Ecological Dynamics in the Greek Archipelago*

Yale Forestry and Environmental Studies Doctoral Seminar, New Haven, CT

Talk Title: *Context Dependence in the Aegean Wall Lizard*

2013 **Yale Forestry and Environmental Studies Doctoral Seminar**, New Haven, CT

Talk Title: *Human impacts on lizard adaptation and ecological dynamics in the Greek archipelago*

2012 **Student Conference on Conservation Science**, New York City, NY

Workshop leader for 40 conference attendees

Workshop Title: *Harnessing Social Media for Conservation Science*

2011 **Student Conference on Conservation Science**, New York City, NY

Poster Title: *Interaction Cascades in Anthropogenic Glades: How Pastoral Practices Increase the Abundance of Native Species in an African Savanna*

Ecological Society of America Annual Meeting, Austin, TX

Talk Title: *Interaction Cascades in Anthropogenic Glades: Adding habitat heterogeneity in an otherwise homogenous landscape across multiple spatial scales and trophic levels.*

2010 **Discovery Day at the Mpala Research Centre**, Laikipia, Kenya

Talk Title: *Interaction Cascades in Anthropogenic Glades*

International Conference on Pastoralism and Climate Change Adaptation in Africa, Egerton University, Kenya

Talk Title: *Mpala Research Centre: A Case Study in Pastoralism as a Coupled Human-Natural System*

GRANTS, FELLOWSHIPS, AND HONORS

2021	<p>Brown University IBES Seed Funding \$30,000 Role: Senior Personnel. PI: Tyler Kartzinel. To support work developing and validating a field-based CRISPR metabarcoding methodology.</p> <p>Elton Prize Shortlist, Journal of Animal Ecology</p>
2017	<p>NSF Postdoctoral Fellowship in Biology \$250,440 36 months of funding for research at Harvard University, Washington University in St. Louis, and the Paris Natural History Museum.</p>
2015	<p>Ecological Society of America Early Career Mentoring Fellow \$200 Selected among hundreds of applicants for individual mentorship during the 2015 ESA meeting in Baltimore, MD.</p> <p>Yale Institute for Biospheric Studies Dissertation Improvement Grant \$3,000 <i>Putting trait variation in context: understanding the impact of lizard hunting mode switching in human contexts.</i></p>
2014	<p>Yale College Undergraduate Research Fellowships \$16,500 Summer research fellowships to support undergraduate research assistants K. Culhane, A. Mossman, and Z. Miller.</p> <p>Yale Institute for Biospheric Studies Dissertation Improvement Grant \$4,000 <i>What drives context-dependent trait variability in Greek lizards?</i></p> <p>Crowdfunding with Experiment.com \$4,600 <i>Are Greek lizards adapting to live with humans?</i></p>
2013	<p>National Geographic Waitt Foundation Grant \$12,000 <i>Anthropogenic Impacts on Lizard Adaptability and Ecosystem Functioning in the Greek Archipelago.</i></p>
2011	<p>Yale Institute for Biospheric Studies Fellowship \$5,000 <i>Functional Convergence in Island Lizard Communities.</i></p> <p>Samuel Trask Dana Award <i>"...to the graduate student in the school judged most outstanding on the basis of scholarship and service."</i></p>
2010	<p>University of Michigan Experiential Learning Fund \$6,000 <i>Integrative Experiential Learning and Research in Mpala, Kenya.</i> With Dr. J. Foufopoulos, Dr. R. Hardin, W. DePuy and K. Yurco</p> <p>Rackham Graduate Student Research Grant \$1,500 <i>Interaction Cascades in Anthropogenic Glades</i></p> <p>Natural Resources and Environment Master's Thesis Grant \$1,000 <i>Interaction Cascades in Anthropogenic Glades</i></p>
2009	<p>Joel Heinen Graduate Student Fund Recipient \$1,000</p>
2007	<p>Elected to Sigma Xi, the scientific research society</p>
2004	<p>Named a Carleton Scholar <i>"...in recognition of outstanding qualities of scholarship, character and promise."</i></p>

PROFESSIONAL SERVICE AND OUTREACH

STUDENTS UNDER MY SUPERVISION

Brown University: Fabiola Meyer Garza (2021), Caroline Dressler (2021), Andy Luo (2021), Thomas Patti (2021)

Washington University, St. Louis: Benjamin Krasnoff (2019)

Harvard University: Master's Student: Raphaël Scherrer (2016); Undergraduate Students: Annelie Herrmann (2017-2018); Vanessa Lam (2017-2018); Emmanuel d'Agostino (2017-2019)

Yale University: Kathryn Culhane (2014-2016); Angus Mossman (2014), Zachary Miller (2014)

REVIEWER

National Science Foundation, National Geographic Grants

Nature, Ecology Letters, Scientific Reports, Global Change Biology, Functional Ecology, Evolution, Behavioral Ecology, Frontiers in Ecology and Evolution, Biological Invasions, Biology Reviews, Biology Letters, Ecology and Evolution, Ichthyology and Herpetology, Journal of Urban Ecology, PeerJ, Biological Journal of the Linnean Society, Journal of Morphology, Journal of Anatomy, Food Webs, Integrative and Comparative Biology, Journal of Herpetology, Canadian Field Naturalist, Journal of Natural History, Acta Ethologica, Acta Herpetologica, Amphibia Reptilia

SCIENCE CONSULTANT

Capstone Press, Chicago IL. Consulting reptile expert for *Flying Dragons* by Will Mara; *Bearded Dragons* by Will Mara; *Komodo Dragons* by Jill Sherman

POPULAR PRESS COVERING MY RESEARCH

National Geographic, The Atlantic, Nature News, New York Times, Smithsonian Magazine, PRI's The World, The Associated Press, The BBC, The Independent, The Conversation, Popular Science, Axios, Atlas Obscura, Popular Mechanics, Mashable, Gizmodo, The Big Think, The Greenwich Time, Earth Island Journal, The Boston Guardian, New Scientist, The Beaker, (e)Science, Yale Peabody Museum, NPR Living on Earth, The Last Word on Nothing Blog, Why Evolution Is True Blog, Wait Wait Don't Tell Me!

SOCIAL MEDIA AND SCIENCE COMMUNICATION

Award-winning personal science blog www.colindonihue.com (320+ posts; 30,000+ visitors to date).
Twitter science communication @colindonihue, [200,000+ annual impressions].

TEACHING EXPERIENCE

2020

Colby College

Visiting instructor for “Biodiversity Conservation in an Era of Global Change”
BI197: January intensive short course for 20 undergraduates.

2012 – 2014

Yale University

Teaching fellow for graduate-level course F&ES 550 “Natural Science Research Methods” (Fall 2012, 2013, 2014) and F&ES 740 “Dynamics of Ecological Systems” (Spring 2013)

F&ES 550: Extensive contact time with first-year Master's students to help in thesis project development.

2010 **University of Michigan**
Graduate Student Instructor for graduate-level course SNRE 509 “Ecology: Science of Context and Interaction.” Sole responsibility for three, two-hour lab sections; included lab lectures, office hours, grading, individual tutoring, and course content review sessions for class of 150 students.

2007 – 2008 **Carleton College**
Laboratory Teaching Assistant: One term supervising Population Ecology Lab, one term supervising Environmental Animal Physiology Lab, three terms supervising Introductory Biology labs.

PROFESSIONAL DEVELOPMENT

Mentorship Training Program, Washington University in St. Louis 2019

PROFESSIONAL MEMBERSHIPS

Member American Society of Naturalists 2014 – Present

Member Ecological Society of America 2011 – Present

SKILLS AND INTERESTS

Languages: French, Greek – basic

Computer Software: Advanced abilities with Microsoft Office, Adobe Creative Suite, R, SPSS, and JMP statistical software packages

RECOMENDERS

Jonathan Losos

Director, Living Earth Collaborative
William H. Danforth Distinguished University Professor
Department of Biology, Washington University
Email: losos@wustl.edu
Phone: +1 (314) 935-3460
Relationship: Postdoctoral fellowship mentor

Oswald Schmitz

Oastler Professor of Population and Community Ecology
School of Forestry and Environmental Studies, Yale University
Email: oswald.schmitz@yale.edu
Phone: +1 (203) 436-5276
Relationship: Ph.D. advisor

Anthony Herrel

Directeur de Recherche (DR2)
Muséum National d'Histoire Naturelle (UMR7179), Paris, France
Email: anthony.herrel@mnhn.fr
Phone: +33 14 07 98 120
Relationship: Postdoctoral fellowship mentor